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10/608,242	06/27/2003	Lawrence B. Kilham	Kilham 1	8593

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ROBERT W. BECKER & ASSOCIATES
707 Highway 66 East, Suite B
Tijeras, NM 87059

EXAMINER
ROGERS, DAVID A

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/608,242	KILHAM, LAWRENCE B.	
	Examiner	Art Unit	
	David A. Rogers	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 23 August 2004 have been fully considered but they are not persuasive.

First, the applicant argues that Thompson *et al.* (United States Patent 5,646,336) does not teach a stripping nozzle. However, this is not correct. The following definitions are noted (emphasis added):

> Nozzle
>
> *A projecting part with an opening*, as at the end of a hose, for regulating and directing a flow of fluid.
>
> Source: The American Heritage® Dictionary of the English Language, Fourth Edition Copyright © 2000 by Houghton Mifflin Company.
>
> Nozzle
>
> 1. The nose; the snout; hence, *the projecting vent of anything*; as, the nozzle of a bellows.
>
> 2. Specifically: (a) A short tube, usually tapering, forming the vent of a hose or pipe. (b) *A short outlet, or inlet, pipe projecting from the end or side of a hollow vessel*, as a steam-engine cylinder or a steam boiler.
>
> Source: Webster's Revised Unabridged Dictionary, © 1996, 1998 MICRA, Inc.
>
> Nozzle
>
> 1. *A projecting spout from which a fluid is discharged* [syn: nose]
>
> Source: WordNet ® 2.0, © 2003 Princeton University

Thompson *et al.* teaches a nozzle formed from a tube (reference item 80) with a plurality of individual orifices (reference item 200). Thompson *et al.* also teaches a liquid (reference item 210) containing constituents to be analyzed, a chamber housing a pump (reference item 30), and a stripping chamber (reference item 60). As seen in figure 1 of Thompson *et al.* the liquid is directed into the atmosphere of the chamber.

The applicant's claim 9 states, *inter alia*, the use of "a stripping nozzle for receiving liquid in which gas is dissolved and for spraying such liquid into the air or gas atmosphere of said stripping chamber in order to strip gas from said liquid." Giving claims their broadest, most reasonable interpretation consistent with the specification, "stripping nozzle" has been interpreted to be any member that ejects/sprays a fluid. *See In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). See applicant's abstract and page 3, lines 10-12 of the specification.

For comparison purposes, the above limitation from claim 9 is shown below with the corresponding description from Thompson *et al.*

a stripping nozzle	a projecting tube (reference item 80) with one or more holes (reference item 200)
for receiving liquid	receives liquid (reference item 210) from liquid source
spraying such liquid into the air or gas atmosphere of said stripping chamber	sprays liquid into the atmosphere of the chamber
in order to strip gas from said liquid	the flow of liquid from the one or more holes will inherently interact with the atmosphere in the chamber such that the atmosphere will entrap the dissolved analytes of interest

Note that there is nothing in claim 9 that expressly requires the nozzle to be an atomizing nozzle or that expressly excludes the liquid from impinging on the wall of the stripping chamber. Also, as seen in the applicant's figure 2, the liquid is directed into the atmosphere and towards a wall of the stripping

chamber. This liquid will also impinge the wall of the chamber similar to the device of Thompson *et al.*

Finally, the nozzle of Thompson *et al.* has a plurality of holes (column 4, line 22), and the holes each have a diameter of between 0.005 inches to 0.007 inches, which is about 0.127 mm to 0.178 mm. These small diameter holes must inherently atomize the emerging liquid. This is based on the fact that the applicant discloses that their stripping nozzle is an atomizing nozzle with orifices having a diameter of about 0.25mm to 1.00 mm, which is significantly larger than the diameter disclosed by Thompson *et al.* Furthermore, the nozzle of Thompson *et al.*, with its plurality of holes, is performing the same claimed function as that of the applicant and, therefore, must also be a stripping nozzle.

The applicant argues that, by placing a nozzle on the device of Thompson *et al.* would not be permissible as this would change the principle of operation of the device of Thompson *et al.* This argument is moot as Thompson *et al.* already teaches the use of a nozzle. However, assuming *arguendo* that Thompson *et al.* does not teach a nozzle, the applicant would still not be correct in this argument. Here the applicant is taking MPEP §2143.01 out of context. This section of the MPEP states:

> If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

However, the Circuit Court also stated in *In re Umbarger* 160 USPQ 734 (CCPA 1969) (and also referring to *In re Ratti* cited in the MPEP §2143.01) that:

> "Appellant argues that "disconnecting Horsch's tachometer circuit from the terminal 11 and inductively connecting Horsch's tachometer circuit to the conductor leading to the spark plug 34" would result in a construction that is "inoperable or, at best, operable in a manner not disclosed and not intended by Horsch." He bases that argument on the particular nature of the signals provided at point 11 in Horsch and the specific circuit connected between points 11 and 12 therein. However, the rationale on which we base our analysis of the rejection involves the substitution of inductive pickup means as suggested by Byerlay for the entire pulse-providing means of Horsch including the pulse treating circuit preceding the pulse-frequency responsive circuit D_1, C_3 and M. It is true that such substitution omits the circuit portion which Horsch apparently regarded as his contribution to the art along with such advantages as it might provide. However, the modified apparatus is clearly obvious in view of the prior art and the retained circuit D_1, C_3 and M of Horsch will operate therein on the same principles as before to indicate engine speed as a function of applied pulse frequency. *In re Irmscher*, 46 CCPA 761, 262 F.2d 85, 120 USPQ 196; *In re Ratti*, 46 CCPA 976, 270 F.2d 810, 123 USPQ 349; and *In re Lobl*, 43 CCPA 734, 228 F.2d 234, 108 USPQ 229, cited by appellant, clearly are not authority for holding a rejection improper under such circumstances."

It is clear that the Court does allow the modification to the prior art where the modification still allows the functionality of the device. In the present application the use of a nozzle does not change the principle of operation of the device of Thompson *et al.* A nozzle would still spray the liquid thus allowing the liquid to be atomized as before so that the carrier gas will take the analytes of interest to the gas analyzing means.

The applicant argues that Thompson *et al.* requires the use of a pump which is not needed by the applicant's invention. However, there is nothing in the applicant's claims 1-17, 19, 20, and 22 that expressly exclude the use of a pump. Also, there is nothing in claims 1, 3-7, and 9-11 of Thompson *et al.* that requires the express use of a pump. See again *In re Schreiber*, 44 USPQ 2d 1429, where prior art anticipates when it contains all structural limitations

recited in application claims. Furthermore, since the applicant's claims are "comprising" and opposed to "consisting", the use of a pump or any other desired element is a possible addition to the claims.

The applicant states that the combination of Thompson *et al.* and Tikijian (United States Patent 5,357,781) and Baykut (United States Patent 5,258,057) changes the principle of operation of Thompson *et al.* Again, this is not correct. The principle of operation of Thompson *et al.* is to strip analytes from an liquid and carry the analytes to a gas analyzer via a carrier gas. This principle is not changed by the use of a different type of liquid and different type of nozzle. See again *In re Umbarger* above.

The applicant argues that Thompson *et al.* teaches away from the use of a nozzle. This, too, is incorrect for the reasons noted above. Thompson *et al.* teaches a nozzle (see the description and definitions above) with a plurality of holes smaller than that disclosed by the applicant. This nozzle must also atomize the liquid when it exits the individual orifices. The fact that the liquid also impacts the wall of the chamber to further atomize the liquid may be beneficial to improving the ability to detect the analytes by increasing the total amount of liquid surface area that interacts with the carrier gas atmosphere. However, there is no express teaching away from using or excluding any other type of nozzle in Thompson *et al.*

The applicant argues that the pump of Thompson *et al.* would destroy any ozone present in the liquid through the use of shearing forces imparted by

the pump's gears. However, as noted above, most of the claims of Thompson *et al.* are not even limited to the use of a pump, and claims 2 and 8 are only limited to pump in a generic sense. There are certainly several types of pumps that do not use gears, such as peristaltic pumps, positive displacement pumps, etc. Peristaltic pumps are well-known to be low-shear force pumps (see United States Patent 6,039,091 to Rodgers *et al.*) and are known to have significant flow rates (see United States Patent 5,698,031 to Winkle). Peristaltic pumps offer the additional advantage of lower maintenance since the fluid does not come into contact with the pumping mechanism. Therefore, this type of pump would offer similar, if not better performance over the gear pump that is disclosed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. This claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In this case, the applicant's specification and claims, as originally filed, never made any mention of a device that expressly excluded means that increased pressure in a branch stream. This is considered new matter relative to the originally filed specification and claims. The applicant is requested to cancel the new matter in response to this office action.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States,

5. Claims 9, 10, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent 5,646,336 to Thompson *et al.*

The applicant's intended use being a stripping chamber for a liquid with a dissolved gas component is not given any patentable weight. The use of this type of liquid does not patentably distinguish over the prior art of Thompson *et al.* See *In re Schreiber*, 128 F.3d 1473, 44 USPQ2d 1429 (Fed. Cir. 1997)[1].

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[1] Prior art patent disclosing conical spout for open-ended containers, which contains all structural limitations recited in application claims for conical dispensing top for popped popcorn, anticipates application claims even though it does not address use of disclosed structure to dispense popcorn, since recitation of new intended use for old product does not make claim to that old product patentable, and since applicant's contention that claimed structure will be used to dispense popcorn thus does not have patentable weight if structure is already known, regardless of whether it has ever been used in any way in connection with popcorn.

Thompson *et al.* discloses an apparatus for stripping volatile materials from a liquid utilizing a stripping chamber (reference item 60). A pressurized inert carrier gas supply, e.g. helium (reference item 40) is introduced into the chamber at a predetermined flow rate and pressure (column 4, lines 8-15). A pump (reference item 30) is connected to the chamber and is used to pump the liquid, e.g. water (reference item 210) into the chamber via a tube (reference item 80) containing a plurality of orifices (reference item 200). The diameter of each orifice, hereinafter referred to as D, is $0.005\,in. \leq D \leq 0.007\,in.$, which is approximately $0.127\,mm \leq D \leq 0.178\,mm$.

The liquid emerging from the orifices is directing into the atmosphere of the chamber. The inherent interaction of the emerging liquid and the chamber's atmosphere would strip the analytes of interest into the atmosphere. Once atomized the volatiles are in a vapor phase and transferred to a gas detector, e.g. a mass spectrometer (reference item 50) using the carrier gas. Mass spectrometers are well known to provide constituent concentration results from their analyses. The remaining liquid is continuously withdrawn from the chamber via an outlet connected to a p-trap (not numbered - but shown in figure 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-4, 8-10, 13, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,646,336 to Thompson *et al.* in view of United States Patent 5,357,781 to Tikijian and United States Patent 5,258,057 to Baycut.

Thompson *et al.* teaches a method for stripping volatile materials from a liquid utilizing a stripping chamber (reference item 60). A pressurized inert carrier gas supply, e.g. helium (reference item 40) is introduced into the chamber at a predetermined flow rate and pressure (column 4, lines 8-15). A pump (reference item 30) is connected to the chamber and is used to pump the liquid, e.g. water (reference item 210) into the chamber via a nozzle (reference item 210). The diameter of the nozzle is $0.005\,in. \le D \le 0.007\,in.$, which is approximately $0.127\,mm \le D \le 0.178\,mm$. Once atomized the volatiles are in a vapor phase and transferred to a gas detector, e.g. a mass spectrometer (reference item 50) using the carrier gas. Mass spectrometers are well known to provide constituent concentration results from their analyses. The remaining liquid is continuously withdrawn from the chamber via an outlet connected to a p-trap (not numbered - but shown in figure 1). Thompson *et al.*, however, does not teach a method for measuring the gas content of a gas that was entrained in a liquid.

Tikijian teaches that it is known to use a stripping chamber (reference item 30) to remove the gas entrained in a liquid. In this apparatus a liquid with an entrained gas is introduced into the chamber and is agitated using agitating means (reference item 82). The gas entrained in the liquid is released and is carried to a sensor (reference item 40) via a pump (reference item 38).

Adapting the method to use the device of Thompson *et al.* so as to use a liquid with an entrained gas, as taught by Tikijian, would involve only routine skill in the art. Furthermore, the apparatus of Thompson *et al.* would be preferred over the device of Tikijian in a method to strip gas from a liquid as the nozzle's orifice, being a very small diameter, would increase the total amount of surface area of the liquid sample so that more of the entrained gas is released into the carrier gas resulting in more accurate results. Also, the nozzle atomizes the entire liquid sample, whereas in the device used by Tikijian only a small portion of the sample is agitated. See also Baykut, column 3, lines 17-32, where the benefits of using the nozzle approach are discussed.

With regard to claim 16 Thompson *et al.* teaches the use of a nozzle with an orifice for injection a sample into a stripping chamber. Thompson *et al.* does not teach the specific material for the manufacture of the nozzle. The use of a stainless steel or plastic nozzle is an obvious design choice as these materials are known to be non-reactive and will not cause erroneous readings with the sensor. See MPEP 2144.07 and *In re Leshin*, 227 F.2d 197, 125 USPQ

416 (CCPA 1960)[2]. Also, the small diameter holes of Thompson *et al.* must inherently atomize the emerging liquid. This is based on the fact that the applicant discloses that their stripping nozzle is an atomizing nozzle with orifices having a diameter of about 0.25mm to 1.00 mm, which is significantly larger than the diameter disclosed by Thompson *et al.* The nozzle of Thompson *et al.*, with its plurality of holes, is performing the same claimed function as that of the applicant and, therefore, must also be a stripping nozzle. Furthermore, enlarging the orifices of Thompson *et al.* from a nominal range of $0.127\ mm \leq D \leq 0.178\ mm$ to a nominal range of $0.250\ mm \leq D \leq 1.000\ mm$ would involve only routine skill in the art. See In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984)[3].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Thompson *et al.* with the teachings of Tikijian and Baykut to obtain a method and apparatus for detecting gas in a liquid using a stripping chamber and a nozzle.

8. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson *et al.* in view of Tikijian and Baykut as applied to

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[2] ...selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious

[3] The Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

claims 1 and 9 above, respectively, and further in view of United States Patent 6,235,207 to Conrad.

Thompson *et al.* in view of Tikijian and Baykut teaches that it is known to use a stripping chamber to remove gas from a liquid in order to detect the concentration of gas that was in the liquid. Thompson *et al.* in view of Tikijian and Baykut does not teach the detection of ozone (O_3) in water.

Conrad teaches that (emphasis added):

> "U.S. Pat. No. 5,683,576 to Olsen describes an apparatus for treating contaminated water by passing ozone through the water. In the system disclosed by Olsen, an ozone containing gas is passed through the water to be treated, until the instantaneous concentration of ozone in the head space above the water being treated reaches a predetermined level. Then, the flow of ozone through the water continues for a predetermined period of time."

and

> "*The amount of ozone which must be passed through the water to purify it to any particular state will vary depending upon the initial quality of water to be treated. For example, untreated well or lake water may require a higher degree of purification than treated city water which has previously been treated to some degree.*"

Clearly, the concentration of the gas, e.g. ozone, in the liquid is critical to the treatment of water. Knowing the concentration of ozone in the water can assist one in determining if the water was sufficiently treated. This is the same teaching as found in the applicant's disclosure (see page 2, lines 2-7).

Conrad also teaches the gas (ozone) is "converted into an innocuous by-product such as oxygen" (column 7, lines 35-37) after passing through the sensor. In the case of Thompson *et al.* it would be preferred to convert or otherwise destroy any volatile organic compounds or other hazardous materials, including those disclosed such as toluene, benzene, methyl ethyl

ketone (MEK), trichloroethane (TCA), dichloroacetic acid (DCA), xylenes, ethylbenzene, and C2-benzenes, by a converter located downstream of the sensor so that these compounds do not enter the environment as required by numerous state and federal regulations.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Thompson *et al.* in view of Tikijian and Baykut with the teachings of Conrad in order to use a stripping chamber to determine the concentration of ozone in a liquid such as water and then use a converter located downstream of the gas sensor to convert the ozone to oxygen.

9. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson *et al.* in view of Tikijian, Baycut, and Conrad as applied to claims 1 and 5 above, and further in view of United States Patent 4,154,086 to Button *et al.*

With regard to claim 6 the use of air as the carrier gas would have been an obvious choice in the detection of ozone in water as it is readily available in unlimited supply and is generally non-reactive in the presence of ozone. Air is about 78% inert nitrogen, 21% oxygen, and 0.9% argon. Air, however, also has trace amount of other elements/compounds including ozone (approximately 0.07 ppm) which would be easily accounted for in a baseline calibration of the sensor. Furthermore, Button *et al.* teaches a device for detecting volatile organics in water. Button *et al.* specifically teaches that (emphasis added):

> "The incoming carrier gas may be sparged into the water by means similar to that shown for the incoming water sample. *The carrier gas is selected to accommodate the detection system*. For example, an inert gas such as nitrogen is employed if the detection means employs a gas chromatograph, whereas if a detection device which burns the organic compound is employed, then an oxygen containing gas, such as air, is employed. Carrier gas rates are generally in the range of 0.1 to 10.0 cubic feet per hour."

The carrier gas flow rate, hereinafter referred to as FR_{cg}, as taught by Button *et al.*, is given as $0.1\frac{ft^3}{hr} \le FR_{cg} \le 10.0\frac{ft^3}{hr}$. Knowing that 1 cubic foot = 28.317 liters, one can easily convert the flow rate to show that it is approximately $0.047\frac{l}{min} \le FR_{cg} \le 4.719\frac{l}{min}$, which includes the claimed rate of $3.0\frac{l}{min}$.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Thompson *et al.* in view of Tikijian and Conrad with the teachings of Button *et al.* to use stripping chamber where the carrier gas is air with $FR_{cg} = 3.0\frac{l}{min}$.

10. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson *et al.* in view of Tikijian and Baykut as applied to claim 9 above, and further in view of "Model A15/79 Gas Phase Measurement of Total Residual Chlorine" to Analytical Technology, Inc. (ATI).

Thompson *et al.* in view of Tikijian and Baykut teaches that it is known to use a carrier gas to transfer a gas released from a liquid in a stripping chamber. In particular, Thompson *et al.* in view of Tikijian and Baykut teaches

that the carrier gas is stored in a pressurized housing. Thompson *et al.* in view of Tikijian and Baykut does not teach the use a pump to move the carrier gas into the stripping chamber.

ATI teaches an apparatus for measuring chlorine in liquids such as water. The apparatus utilizes air as the carrier gas. A pump, such as a diaphragm pump with precision flow control, is used to move the carrier gas to the stripping chamber. A pressurized chamber with a pressure regulator (as taught by Thompson *et al.*) is functionally equivalent to the diaphragm pump with flow control since both operate to deliver the gas at a predetermined pressure and/or flow rate.

It would have been obvious to modify the teachings of Thompson *et al.* in view of Tikijian and Baykut with the teachings of ATI to obtain a stripping chamber for gas detection where a carrier gas such as air is delivered to the chamber using a diaphragm pump.

11. Claims 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson *et al.* in view of Tikijian and Baykut as applied to claims 1 and 9 above, and further in view of United States Patent 5,005,432 to Faulkner.

Thompson *et al.* in view of Tikijian and Baykut teaches a device for stripping analytes from a liquid in a stripping chamber. In particular, Thompson *et al.* teaches that the liquid can be from water samples or *process streams* (column 3, line 62). Process streams are well-known in the art to be conduits of flowing fluids. Since the fluid is flowing it must be subjected to

some pressurizing source to cause the flow. Therefore, in the case of Thompson *et al.*, the sampling conduit extending from the process stream to the stripping chamber must be a branch conduit. The liquid displacing means can be eliminated, if desired, and the pressurized flow will still pass through the branch conduit and into the stripping chamber since the chamber is not pressurized. See MPEP §2144.04 and *Ex Parte Wu* where it is known that the omission of an element, i.e., the fluid displacement means, when not needed is an obvious modification.

Thompson *et al.* in view of Tikijian and Baykut does not teach obtaining the fluid at a lower pressure than the process stream. Faulkner teaches a process stream through a conduit (reference item 20). As seen in figure 13 the conduit has a branch bypass so that the liquid can be sampled and analyzed without the use of pressurizing means. In particular, Faulkner teaches that the bypass structure permits safe sampling of the process fluids through a conduit of a process stream under hazardous conditions (high/low pressure, high temperature, and flammable/explosive/toxic streams). Furthermore, the structure of Faulkner allows for the obtaining the sample under manageable pressure and flow (column 2, line 23). The sample exiting the valve through the lower conduit (reference item 44) will be at a pressure lower than the main process stream (see column 4, lines 28-36). Adapting the inlet conduit, the fluid displacing means, and the outlet conduit of Thompson *et al.* to include

the bypass structure of Faulkner would allow the process streams to be sampled and analyzed as needed in a safe manner

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Thompson *et al.* in view of Tikijian and Baykut with the teachings of Faulkner to provide a method and apparatus for obtaining liquids from a process stream by branching a conduit off of the process stream.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone

number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800